



## Site Policies and Procedures

<b><u>Transport of Radioactive Sources</u></b>		
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### 1 **PURPOSE**

The purpose of this procedure is to establish the requirements for the safe transport of licenced sealed radioactive sources between Laurentian University and SNOLAB. All personnel that transport licenced sealed radioactive sources between Laurentian University and SNOLAB shall follow this procedure. This will ensure regulatory compliance and keep radiation dose exposure within the legal requirements, and as low as reasonably achievable.

### 2 **GENERAL INFORMATION**

2.1 Under the Packaging and Transport of Nuclear Substances Regulations – SOR/2000-208 every organization involved in the transport of radioactive material must:

- a) have an emergency plan in place;
- b) maintain a radiation protection program;
- c) train their workers in radiation safety;
- d) report to the Canadian Nuclear Safety Commission any incident involving radioactive materials; and
- e) maintain records for two (2) years after the transport takes place.

2.2 Radioactive sources are transported to SNOLAB for the purpose of calibrating experiments and radiation detection instruments. SNOLAB personnel are classified as non-Nuclear Energy Workers.

The radiation dose limits for non-Nuclear Energy Workers are:

- Whole-body dose = 1 milliSievert/year;
- Extremity/Skin dose = 50 milliSievert/year.

To ensure that SNOLAB complies with the applicable federal regulations, and to ensure that radiation dose exposure is kept below the regulatory limits and as low as reasonably achievable, personnel shall follow the guidance given in this procedure when transporting licenced sealed radioactive sources.

### **3 STANDARD PRACTICES**

- 3.1 In preparing a package for shipment, the consignor is responsible for ensuring that the package meets all of the requirements specified in the Packaging and Transport of Nuclear Substances Regulations – SOR/2000-208.

Packages are to be categorized and labelled based on the radiation level at both the surface and at one metre from the package. This is known as the Transport Index (TI). The Transport Index is calculated by taking the highest radiation dose rate (in microSievert/hour) measured at one metre from the package and dividing this measurement by ten. The Transport Index is used to limit the number of packages onboard a transport vehicle and to segregate packages from persons or other goods.

- 3.2 The shipper is also responsible for preparing the transport document, which contains, the:

- a) description of the package being transported;
- b) shipping name of the dangerous good;
- c) United Nations number;
- d) form of the material;
- e) isotope;
- f) maximum activity;
- g) category of the package;
- h) Transport Index; and
- i) applicable identification mark for each approval certificate.

- 3.3 The person receiving a shipment of radioactive material is the Radiation Safety Officer (licensee). In accordance with the Packaging and Transport of Nuclear Substances Regulations, the Radiation Safety Officer must verify that the package is not damaged and has not been tampered with. Any shipping non-conformances will be considered a reportable incident to CNSC and SNOLAB.

Sealed radioactive sources must be:

- a) licenced by the Canadian Nuclear Safety Commission (CNSC) under the Nuclear Safety and Control Act – Section 44, SOR/2000-207;
- b) approved by the SNOLAB Director;
- c) transported in compliance with the Packaging and Transport of Nuclear Substances Regulations – SOR/2000-208;
- d) transported in compliance with the Transportation of Dangerous Goods Regulations, SOR/2008-34 – Class 7- Radioactive Materials.
- e) transported by personnel that have been trained in SNOLAB radiation safety procedures and authorised as a source user by the Radiation Safety Officer;
- f) transported by personnel that have been trained and certified in the transportation of dangerous goods;
- g) transported with the guidance and approval of the Radiation Safety Officer;
- h) accompanied by a transport document that identifies the contents of the transport package in accordance with the Packaging and Transport of Nuclear Substances Regulations – SOR/2000-208;
- i) transported underground and to surface by prior arrangement with the Facility Operations Group; and
- j) not left unattended at any time during transportation.

3.4 Under the Packaging and Transport of Nuclear Substances Regulations and the Transportation of Dangerous Goods Regulations, the shipper must have measures in place to respond in the event of an emergency involving the transport of the radioactive material. In addition, the Transportation of Dangerous Goods Regulations require the shipper to display a 24-hour emergency telephone contact number on the shipping document that accompanies the shipment of dangerous goods. The 24-hour emergency contact telephone number will be provided by the Radiation Safety Officer.

3.5 The Packaging and Transport of Nuclear Substances Regulations require that all incidents be immediately reported to the CNSC by the Radiation Safety Officer, or Safety Officer. Once notified of a transport incident involving radioactive material, CNSC will provide appropriate technical information and advice to responders at the site of the incident. CNSC can be deployed immediately, if required, to assist in managing the incident.

#### **4 SUPPLEMENTARY INFORMATION AND REFERENCES**

- Nuclear Safety and Control Act – Section 44 – SOR/2000-207
- Packaging and Transport of Nuclear Substances Regulations – SOR/2000-208

- Transportation of Dangerous Goods Regulations – SOR/2008-34–Class 7–Radioactive Materials
  - SNOLABP-Radiation Protection Program
  - SNOLABP-Training and Authorization for Users of Radioactive Sources
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